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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,250	07/16/2003	Dong Hwan Lee	CU-3300 RJS	1267

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EXAMINER

LUI, DONNA V

ART UNIT	PAPER NUMBER
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2675

DATE MAILED: 11/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/621,250	Applicant(s) LEE ET AL.	
	Examiner Donna V. Lui	Art Unit 2675	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 October 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 7-12 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-20 is/are allowed.
- 6) ☒ Claim(s) 1 and 3-5 is/are rejected.
- 7) ☒ Claim(s) 2 and 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Election/Restrictions***

2. Applicant's election without traverse of claims 1-6 and 13-20 in the reply filed on October 7, 2005 is acknowledged.

### ***Specification***

3. The disclosure is objected to because of the following informalities:
  - a. The pages on the specification need to be numbered.
  - b. Page 4, lines 2-7, does not make sense
  - c. Page 24, line 18, the count section should correspond to 600 and the control section should correspond to 500 as shown in figure 13.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1 and 4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Moon et al. (Pub No.: US 2003/0117356) in view of Jeon et al. (Pub No.: US 2002/0149318) and in further view of Shirochi (Patent No.: 5,155,477).

With respect to **Claim 1**, Moon discloses a liquid crystal driving device (*figure 3*) generating gate-on/off signals to drive liquid crystal (*p 4, [0053], lines 1-7; gate-on/off is equivalent to gate-high/low*). Moon teaches the liquid crystal driving device to comprise a gate-off voltage generation means (*gate TCPs 46A to 46D*) for receiving a first gate-off voltage and the location data of the pertinent gate driver IC, and outputting a second gate-off voltage which is generated by subtracting a voltage attenuation quantity corresponding to the location data of the gate driver IC from the first gate-off voltage (*p. 4, [0057], lines 6-10*). The voltage attenuation quantity due to the location of the gate driver IC is equivalent to a predetermined amount proportional to the sum of the line resistances preceding the gate driver IC and the term subtraction is equivalent to reduction.

Moon does not teach a sequence recognition means for recognizing sequence of a pertinent gate driver IC by a pulse width of a vertical start signal inputted in synchronization with a vertical synchronous signal, and generating a carry signal and location data of the pertinent gate driver IC.

Jeon discloses a liquid crystal driving device (*figure 4*). Jeon teaches a sequence recognition means for recognizing the sequence of a pertinent gate driver IC by a pulse width of a start signal inputted in synchronization with a vertical synchronous signal (*p. 6, [0114], lines 1-4*), and generating a carry signal (*p. 6, [0113], lines 1-6; carry signal is equivalent to the "out"*

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*of each stage*) and location data of the pertinent gate driver IC. However, Jeon does not teach the use of a vertical start signal.

It would have been obvious for a person of ordinary skill in the art at the time the invention was made to use the pulse width of a start signal inputted in synchronization with a vertical synchronous signal for generation of a carry signal and location data of the pertinent gate driver IC, as taught by Jeon, to the liquid crystal driving circuit of Moon, for the purpose of selecting horizontal lines corresponding to active periods of output signals (*p. 6, [0118], lines 1-4*).

Shirochi discloses a liquid crystal display device (*figure 4*). Shirochi teaches the use of a vertical start pulse for generating scanning signals (*column 7, lines 25-30*). It would have been obvious for a person of ordinary skill in the art at the time the invention was made to use a vertical start signal pulse, as taught by Shirochi, to the liquid crystal driving circuit of Moon, as modified by Jeon, for the purpose of indicating the start of a vertical scan (*column 6, lines 28-30*).

With respect to **Claim 4**, Moon teaches a liquid crystal driving device wherein the gate-off voltage generation means receives at least one state signal (*p. 4, [0053], lines 4-7; one state signal is equivalent to the gate low voltage signal, another state signal is equivalent to a gate high voltage signal*).

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5. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Moon, in view of Jeon and Shirochi, as applied to claim 1, and in further view of Kusafuka et al. (Patent No.: 5,995,074).

With respect to **Claim 5**, note the above discussion of Moon, Jeon and Shirochi. Moon teaches the state signal is determined according to the characteristics of a signal line pattern (*p. 3, [0033], lines 3-7*). Moon, Jeon and Shirochi do not teach the state signal is determined according to resolution and size of the liquid crystal panel. Kusafuka teaches a driving method for a liquid crystal display where at least one state signal is determined according to resolution and size of a liquid crystal panel (*column 4, lines 7-13*). The state signals are the gate-on and gate-off signals. The state signal is determined according to resolution and size of the liquid crystal display because image quality and reliability are not reduced even though resolution is improved and screen size is increased (*column 4, lines 9-12*). It would have been obvious for a person of ordinary skill in the art at the time the invention was made to use state signals that are determined according to resolution and size of the liquid crystal panel, as taught by Kusafuka, to the liquid crystal driving circuit of Moon, as modified by Jeon and Shirochi, for the purpose of obtaining superior image quality, reliability, and reducing power consumption (*column 4, lines 7-13*).

*Allowable Subject Matter*

6. Claims 2 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With respect to **Claim 2**, reference Moon teaches a liquid crystal display. None of the prior art teaches a vertical start signal that has a pulse width changed on the basis of a value of location data of the pertinent gate driver IC.

With respect to **Claim 6**, reference Moon teaches a liquid crystal driving device wherein the gate-off voltage generation means subtracts voltage attenuation quantity corresponding to location data of the gate driver IC from an inputted gate-off voltage. None of the prior art teaches a compensation value added to the value corresponding to the subtraction of a voltage attenuation quantity from the inputted gate-off voltage, thereby generating the next sequential gate-off voltage.

7. **Claims 13-20** are allowed.

8. The following is a statement of reasons for the indication of allowable subject matter:

With respect to **Claim 13**, none of the prior art teaches a control section for calculating a plurality of parameter values on the basis of the number of gate driver ICs and the number of gate lines, comparing the count value counted by the count section with the calculated parameter

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values, and controlling the reference data generation section to select and output one of the plurality of reference data with reference to a look-up table according to the result of the comparison.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donna V. Lui whose telephone number is (571) 272-4920. The examiner can normally be reached on Monday through Friday 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Donna V Lui  
Examiner  
Art Unit 2675

  
**CHANH NGUYEN**  
**PRIMARY EXAMINER**